# 2009 Year in Pictures SCHOOL OF CHEMICAL ENGINEERING



#### **RESEARCH FRONTIERS**

CLEAN ENERGY

SOLAR

**BIOFUELS** 

**HYDROGEN** 

**FUEL CELLS** 

COAL

SUSTAINABILITY

**ENGINEERING** 

MEDICAL ENGINEERING **BIOLOGICAL & ENGINEERING** 

CHE FUNDAMENTALS DRUG DELIVERY

> BIOMIMETIC MATERIALS

CATALYSIS & REACTION **ENGINEERING** 

**FLUID MECHANICS &** INTERFACIAL **PHENOMENA** 

**MASS TRANSFER & SEPARATIONS** 

**MOLECULAR &** NANOSCALE MODELING

POLYMERS & MATERIALS

PRODUCT & PROCESS SYSTEMS **ENGINEERING** 

& PROCESSING

**INFORMATICS & COMPLEX SYSTEMS** 

CHEMICAL SWITHESIS **BIOCATALYSIS**  MODELING

MODELING

MARMACEUTICAL ENGINE

ADVANCED MATERIALS CATALYST DESIGN

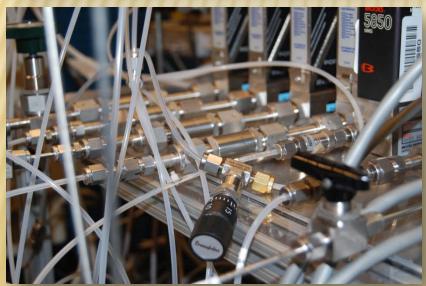
**HYDRODEOXYGENATION** 

CHEMICAL SENSORS

PARTICLE DESIGN

# **RESEARCH SNAPSHOTS**





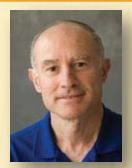




## CHEMICAL ENGINEERING FACULTY



Rakesh Agrawal ScD, MIT, 1980



Osman Basaran PhD, Minnesota, 1984



Chelsey D. Baertsch PhD, UC - Berkeley, 2001



Stephen P. Beaudoin, PhD, NC State, 1995



James M. Caruthers ScD, MIT, 1977



Raj Chakrabarti PhD, Princeton, 2002



David S. Corti PhD, Princeton, 1997



W. Nicholas Delgass PhD, Stanford, 1969



Elias I. Franses PhD, Minnesota, 1979



Robert E. Hannemann MD, Indiana, 1959

## CHEMICAL ENGINEERING FACULTY



Michael T. Harris PhD, Tenn.- Knoxville, 1992



Hugh W. Hillhouse PhD, Massachusetts, 2000



R. Neal Houze PhD, Houston, 1968



Sangtae Kim PhD, Princeton, 1983



Julie Liu PhD, CalTech, 2006



James D. Litster PhD, Queensland, 1985



John A. Morgan PhD, Rice, 1999



Joseph F. Pekny PhD, Carnegie Mellon, 1989



R. Byron Pipes, PhD, Texas-Arlington, 1972



Doraiswami Ramkrishna PhD, Minnesota, 1965

# CHEMICAL ENGINEERING FACULTY



Gintaras V. Reklaitis, PhD, Stanford, 1969



Fabio H. Ribeiro PhD. Stanford, 1989



Kendall T. Thomson PhD. Minnesota, 1999



Arvind Varma
PhD, Minnesota, 1972



Venkat Venkatasubramanian PhD, Cornell, 1984



Nien-Hwa Linda Wang PhD, Minnesota, 1978



Phillip C. Wankat PhD, Princeton, 1970



You-Yeon Won PhD, Minnesota, 2000



Yue Wu PhD, Harvard, 2006



Chongli Yuan PhD, Cornell, 2007

# **EMERITUS FACULTY**



Lyle F. Albright PhD, Michigan, 1950



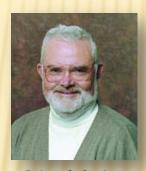
Ronald P. Andres PhD, Princeton, 1962



Kwang-Chu Chao PhD, Wisconsin, 1956



Robert A. Greenkorn PhD, Wisconsin, 1957



Robert G. Squires PhD, Michigan, 1963



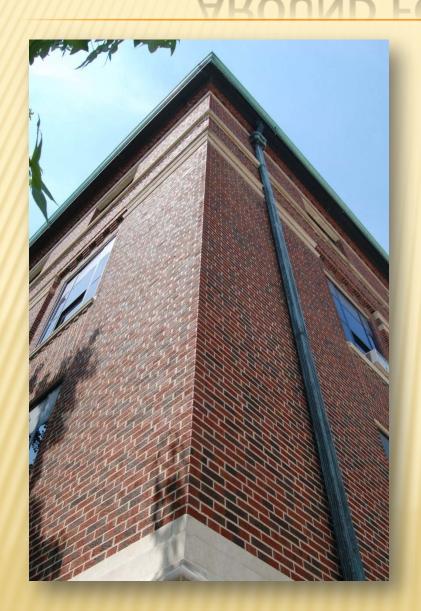
George T. Tsao PhD, Michigan, 1960





Nancy W. Y. Ho PhD, Purdue, 1968

# AROUND FORNEY HALL





#### RAJ CHAKRABARTI -ASSISTANT PROFESSOR

#### **FALL 2009**



- AB, Harvard College (magna cum laude with highest honors), 1996
- × PhD, Princeton University, 2002
- NIH Post Doctoral Fellow MIT, Columbia University, 2003-2006
- Research Scholar, Princeton University, 2007-2009
- Research Interests: Quantum Control and Information Theory, Theoretical and Computational Biophysics, Applications to Energy Sciences

## YUE WU - ASSISTANT PROFESSOR

#### **FALL 2009**



B.S. Chemistry, 2001, University of Science and Technology of China (USTC), Hefei, P. R. China.

Ph.D. Chemistry, 2006, Harvard University

Miller Research Fellow in Chemistry, 08/2006 - 07/2009, University of California - Berkeley

Research Interests: Synthesis, Characterization, Assembly of Nanostructured Materials and their Potential Applications in Nanoscale Devices and Sustainable Energy

#### CHONGLI YUAN - ASSISTANT PROFESSOR

#### **FALL 2009**



- B.S., East China University of Science and Technology, 2002
- × Ph.D., Cornell University, 2007
- Post-Doctoral Research Associate, ETH, Zurich, 2007-09
- Research Interests: Biomimetic Nanoparticle Systems, Molecular Biophysics

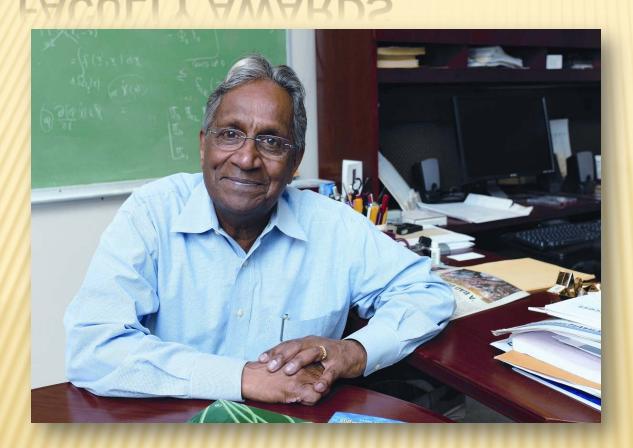
# RESEARCH SNAPSHOTS







# **FACULTY AWARDS**



#### Doraiswami "Ramki" Ramkrishna

Harry Creighton Peffer Distinguished Professor

Elected to the National Academy of Engineering (2009)

# CONGRATULATIONS TO CHE FACULTY



#### Rakesh Agrawal

•Inaugural winner, Excellence in Gas Processing Award, Annual Gas Processing Symposium, Qatar (2009)



#### Michael Harris

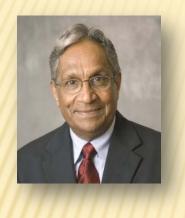
•Elected Fellow, AIChE (2009)



#### James Litster

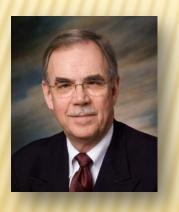
 Achievement Award, 9th International Agglomeration Symposium/4th International Granulation Workshop, UK (2009)

# CONGRATULATIONS TO CHE FACULTY



#### "Ramki" Ramkrishna

- Platinum Award, Institute of Chemical Technology, University of Mumbai (2008)
- •Honored with Special Issue, Chemical Engineering Science, Vol. 64, No. 4 (2009)



#### Rex Reklaitis

•Festschrift Honoree, Computers & Chemical Engineering, Vol. 32, Issues 4-5 (2008)

# CONGRATULATIONS TO CHE FACULTY



#### **Arvind Varma**

- Distinguished ChE Alumnus (Inaugural batch of 3), Panjab University (2008)
- Distinguished University Alumnus,Panjab University (2008)
- •Honoree, Festschrift issue, I&EC Research, Volume 47, No. 23 (2008)



#### Venkat Venkatasubramanian

•Computing in ChE Award, Cast Division, AIChE, (2009)

#### 100 YEARS OF CLASS PICTURES 1909 TO 2009



#### **ALUMNI AWARDS**



#### Kristi Anseth, BSChE '92

Tisone Distinguished Professor,
Associate Professor of Surgery,
Howard Hughes Medical Institute Investigator,
Chemical and Biological Engineering,
University of Colorado

- Elected to the National Academy of Engineering (2009)
- Elected to the Institute of Medicine (2009)
- Professional Progress Award, AIChE (2009)

#### 2009 DISTINGUISHED ENGINEERING ALUMNUS



#### Jeffrey Hemmer, BSChE 1980

Senior Vice President
Solution Implementation,
Sinclair Group

# **ALUMNI AWARDS**

2009 DEA

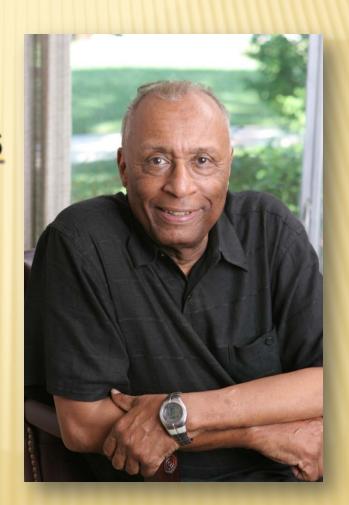
Jeffrey Hemmer
accepting his award,
with
Provost Randy Woodson
and
COE Dean Leah Jamieson



#### Henry Sampson, BSChE '56

Director of Mission Development and Operations of the Space Test Program (retired)

**Aerospace Corporation** 





Henry Sampson and Hosts:
Arvind Varma and Michael Harris

# <u>Mary Ellen Weber,</u> <u>BSChE '84</u>

Vice President
Governmental Affairs and Policy,
University of Texas
Southwestern Medical Center, Dallas





Mary Ellen Weber with hosts Chongli Yuan and Arvind Varma

## **ALUMNI AWARDS**



#### Chris Bowman, BSChE '88, PhD '91

Associate Dean for Research,
Patten Professor of Chemical and Biological
Engineering, Clinical Professor of Restorative
Dentistry

Charles M. A. Stine Award, AlChE (2009)



#### Antonios Mikos, PhD '88

- J. W. Cox Professor of Chemical and Bioemolecular Engineering Rice University
- ChE Lectureship Award, ASEE (2009)
- •Fellow, Biomedical Engineering Society (2009)

#### **ALUMNI AWARDS**



#### <u>Surya Mallapragada, PhD '96</u>

Richard Stanley Chair in Interdisciplinary Engineering and Head, Department of Chemical and Biological Engineering, Iowa State University

- × Fellow, AAAS (2009)
- Distinguished Service Award, FPB Division, AIChE (2009)



#### **CLASS OF 2009**



#### SCHOOL OF CHEMICAL ENGINEERING PURDUE UNIVERSITY

Class - May 2009

- ROW 1: K. Sommers, D. Pradana, S. Farkas, A. Fairbanks, Y. Pan, C. Saunders, B. Hasler, L. Quock, M. Knust, K. Vargo,
  - D. Hanna, E. Havekost, J. Deck, S. Watson, E. Kwek, R. Huang, D. Cornejo, L. Leksokumoro, A. Lee, M. Endo
- ROW 2: B. Leach, N. Kissel, M. Richardson, R. Bowditch, A. Belcher, T. Faga, J. Livarchik, A. Parry, B. Billings, C. Ruemmele, C. Bucherl, R. Gardiner, Y. Fouad, A. DeFrees, J. Lancaster
  - OW 3: M. Hopson, G. Jenkins, A. Schuetter, C. Wirkowski, J. Douglas, A. Steinhauser, S. Black, A. Gantz, C. Rutter, P. Schoch, E. Ruf, N. Lantin, M. Cyb, R. Noble, A. Khasnobis, S. William, D. Yao
- ROW 4: N. Soloski, M. Hosford, D. Edwards, M. Bray, C. Shank, L. Ohta, M. Barber, A. Wenger, A. Jackel, A. Gerber, K. Morrell, L. Lambert, P. Sharma, A. Desai, C. Chin, L. Adijanto, E. Adijanto, R. Tan
- ROW 5: R. Oliveira, K. Tyus, M. Somasundaram, B. Stiles, J. Adams, B. Heasley, N. Mosbucker, C. Diao, W. Sun, D. Yang
- ROW 6: C. Fussner, M. Christiansen, C. Bouis, T. Choudhury, T. Bartley, J. Witte, M. Francisco, C. Class, K. Kyburz, R. Goeltz, M. Bobart
- ROW 7: Z. Al Zayer, D. Rains, F. Khatri, D. Knight, S. Burns, C. Kubinski, L. Chau, J. Farris, E. Hasselbring, J. Crum, D. Jemison, J. Jang, P. Taleyarkhan

# STUDENT RECOGNITIONS



Julie Kadrmas
Graduate Student and GSO President

**NSF Graduate Fellowship** 



David Hanna
Undergraduate Student, class of 2009
NSF Graduate Fellowship

# **GRADUATE STUDENT AWARDS**

Krista Novstrup

Graduate Student
COE Outstanding Service
Scholarship Award



Graduate Student

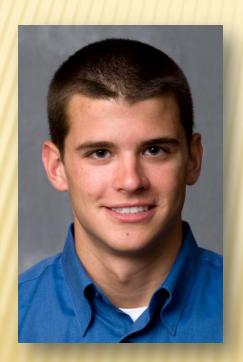
ConocoPhillips Scholarship





#### **UNDERGRADUATE STUDENT HONORS**

Tyler Teykl
ChE Sophomore
Elected Purdue Student Trustee



#### Ashley Wenger

ChE Senior
Selected as Student Responder
August 2009 Commencement Ceremony



# **COOP STUDENTS. FALL 2009**



# RESEARCH SNAPSHOTS







#### Larry Campbell

Shipping and Receiving Clerk

- 2009 Professional Achievement Award, College of Engineering
  - 30 Years of Service with the School of Chemical Engineering,
     41 years of Service to Purdue



Andrea Sills

**Business Manager** 

2009 Professional Service with Pride Award (PSP) COE Business Services

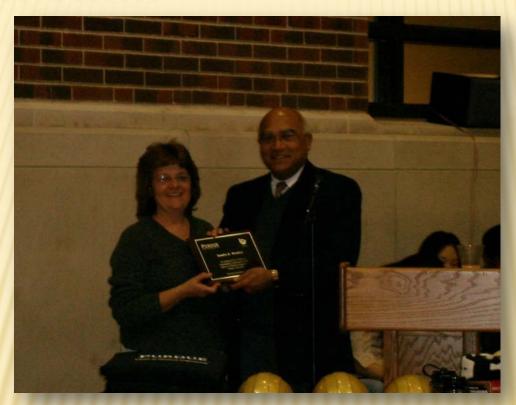




Marcella Maynard

Secretary

10 Years of Service with the School of Chemical Engineering

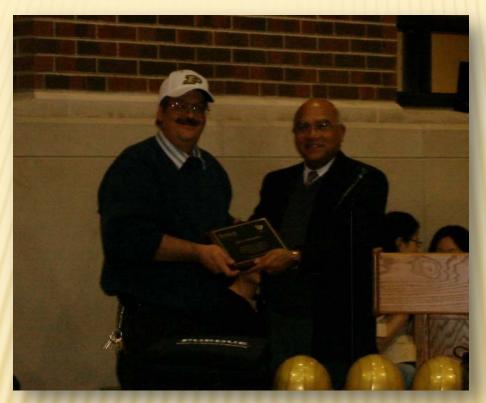


Sandy Hendryx

Secretary

10 Years of Service with the School of Chemical Engineering Voted "Most Helpful Staff Member" by the Class of 2009

## STAFF AWARDS



Rick McGlothlin

**Laboratory Associate** 

10 Years of Service with the School of Chemical Engineering

## STAFF AWARDS

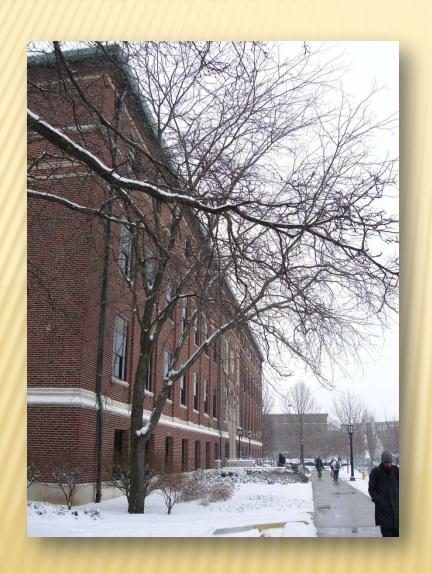


## <u>David Taylor</u>

**Electronics Shop Coordinator** 

30 Years of Service with the School of Chemical Engineering

# JANUARY 2009





# AROUND THE SCHOOL, MARCH 2009



#### **INAUGURAL WOMEN IN CHEMICAL ENGINEERING SEMINAR**

## "CAREER PERSPECTIVES"

SATURDAY, MARCH 28, 2009

Undergraduate and graduate women
Chemical Engineering students and
Chemical Engineering alumnae met
for an afternoon of networking
on career choices, opportunities
and challenges for women
chemical engineers. Four of our
remarkable Chemical Engineering
alumnae shared their career and personal
experiences and perspectives during this
energizing and fun event.

## WOMEN IN CHE - CAREER PERSPECTIVES





Linda Davis, Director of Industrial Education and Seminar Organizer, Delivering the Welcome Address at the Inaugural Women in ChE Seminar

## WOMEN IN CHE - CAREER PERSPECTIVES



## Jennifer Young, BSChE 2006

Reservoir Engineer
Shell Exploration and Productions
Keynote Speaker



## Jennifer Curtis, BSChE 1983

Professor and Chair
Chemical Engineering Department
University of Florida
Invited Speaker

## WOMEN IN CHE - CAREER PERSPECTIVES



Ronna Robertson, BSChE 1992
Operations Superintendent, Fluoromonomers

DuPont Fayetteville Works

Invited Speaker



<u>Lynn Takala, BSChE 2004</u>

Process Engineer
Fluor Chemicals Technology Center
Invited Speaker

## PARTICIPANTS IN THE WOMEN IN CHE SEMINAR



# **MARCH 2009**



## CHE ACADEMIC ADVISORY BOARD

#### Kristi Anseth

Distinguished Professor and HHMI Investigator, Chemical and Biological Engineering University of Colorado

#### Alexis Bell

Warren and Katharine Schlinger
Distinguished Professor,
UC Berkeley

## Ignacio Grossman

Rudolph R. and Florence Dean University
Professor of Chemical Engineering,
Carnegie-Mellon

#### Michael Ramage

Executive Vice President, ExxonMobil, Retired

## **Gregory Stephanopoulos**

Bayer Professor of Chemical Engineering
MIT

#### **Matthew Tirrell**

Arnold and Barbara Silverman Professor
Departments of Bioengineering, Chemical
Engineering and Materials Science & Engineering,
University of California, Berkeley.

## **ACADEMIC ADVISORY BOARD**

**APRIL 1-2, 2009** 



Dr. Arvind Varma with Ignacio Grossman and Michael Ramage.



## **ACADEMIC ADVISORY BOARD**

**APRIL 1-2, 2009** 





Dr. Ramkrishna presenting to Greg Stephanopoulos, Ignacio Grossman and Michael Ramage.

## INSIDE PURDUE CHE RESEARCH LABS







# KELLY LECTURE - APRIL 21-22, 2009

#### THE KELLY LECTURE

Arthur Kelly, an alumnus of the university, established the Kelly Fund at Purdue University in 1956. The income from this fund is used to bring outstanding scientists and engineers to the campus for lectures and discussions in the Department of Chemistry and the School of Chemical Engineering.

#### Carol K. Hall

Camille Dreyfus Distinguished University Professor North Carolina State University

Thermodynamic and Kinetic Origins of Alzheimer's and Related Diseases: A Chemical Engineer's Perspective 3:30-4:30 p.m. Tuesday, April 21 • Room G140, Forney Hall

Self-Assembly of Dipolar Particles: Designing
Smart Materials Using Computer Simulation
11:30 a.m.-12:30 p.m. Wednesday, April 22 • Room 3059, Forney Hall



## DR. CAROL HALL

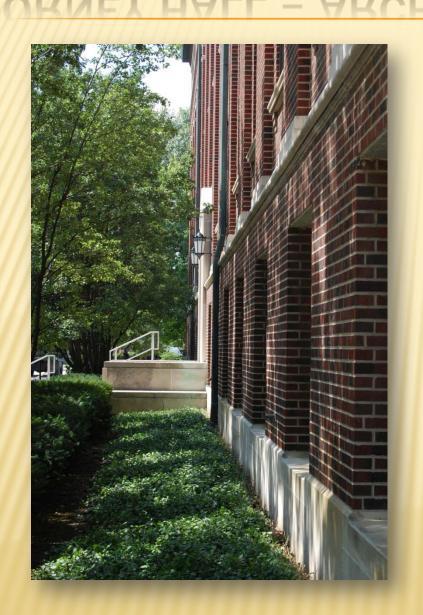


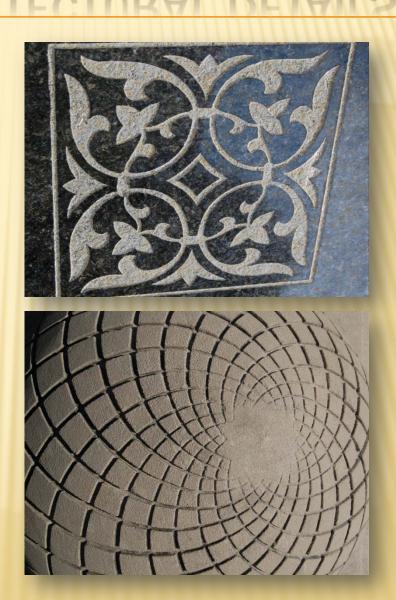
Dr. Carol Hall presenting the Kelly Lecture and interacting with graduate students





# FORNEY HALL - ARCHITECTURAL DETAILS





# AICHE COOKOUT - APRIL 2009





# AICHE COOKOUT - APRIL 2009



# AROUND THE SCHOOL



# CHE FACULTY, STAFF AND STUDENT APPRECIATION RECEPTION – MAY 2009





# STAFF RETREAT - AUGUST 13, 2009



## AROUND THE SCHOOL





# **GRADUATE STUDENT ORGANIZATION (GSO)**



Julie Kadrmas
President



Vince Kispersky
Vice President



Nyah Zarate
Voting Representative



Clancy Kadrmas
Non Voting
Representative



Sara Yohe First Year Representative



Katie Smith
Social Committee Chair



Piotr Gawecki PGSG Senator



Shane Bates
Outreach Committee
Chairperson

## 18TH ANNUAL GRADUATE RESEARCH SYMPOSIUM

AUGUST 19-20, 2009



Professors Hugh Hillhouse and Linda Wang flanking Dr. Montgomery Alger

Arvind Varma and Julie Kadrmas With Dr. Montgomery Alger

## GSO SYMPOSIUM - POSTER SESSION AND LECTURE

AUGUST 19-20, 2009



## GSO SYMPOSIUM - POSTER SESSION

AUGUST 20, 2009



**Grayson Ford** 

# GSO SYMPOSIUM - POSTER SESSION

AUGUST 20, 2009



Professors Arvind Varma and Nicholas Delgass



Professors Chongli Yuan and Julie Liu

## GSO SYMPOSIUM - BANQUET

AUGUST 20, 2009



Professors Neal Houze and Chongli Yuan with Graduate Student Shuang Chen and Post Doctoral Research Associate Chung Pei Lun



Graduate Student Qing Zhu and Professor Lyle Albright

# GSO OFFICERS WITH KEYNOTE SPEAKER



Monty Algier, Air Products, with Graduate Students Piotr Gawecki, Katie Smith, Sara Yohe, Julie Kadrmas, Vince Kispersky, and Shane Bates

# INSIDE FORNEY HALL





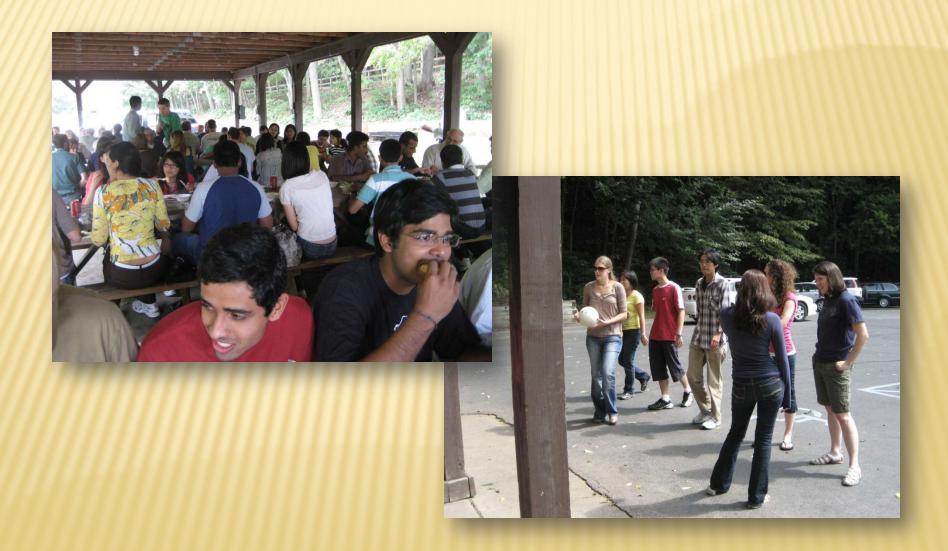
## GSO - NEW GRADUATE STUDENTS WELCOME PICNIC

AUGUST 24, 2009



## GSO - NEW GRADUATE STUDENTS WELCOME PICNIC

**AUGUST 24, 2009** 



## **GSO VOLLEYBALL TOURNAMENT**

SEPTEMBER 2009



# **GSO VOLLEYBALL TOURNAMENT**

SEPTEMBER 2009





## **GSO SOCCER TOURNAMENT**

**OCTOBER 2009** 



**FACULTY VS. STUDENTS** 

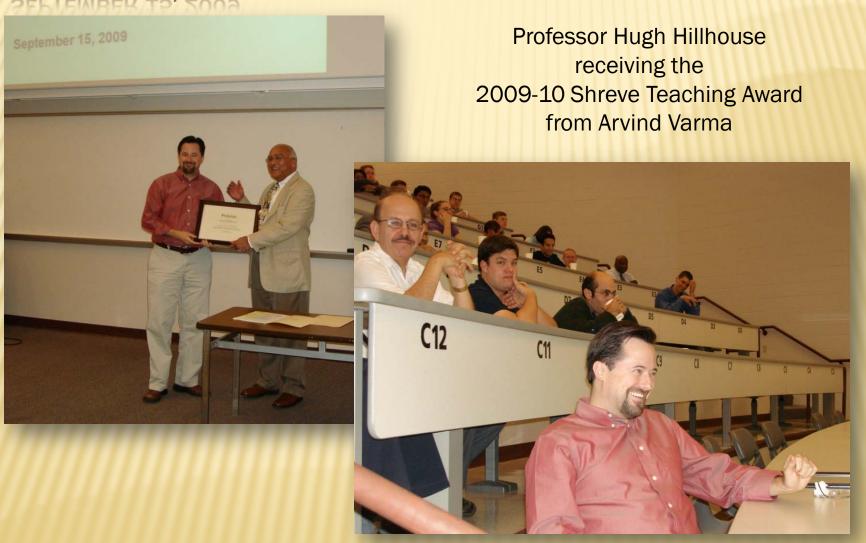
# INSIDE FORNEY HALL





# 2009 SHREVE TEACHING AWARD

**SEPTEMBER 15, 2009** 



### CHE COUNCIL FOR SUSTAINABILITY INITIATIVES (CSI)



The Council for Sustainability Initiatives (CSI) is a new ChE Student Organization.

The goals are to encourage the Chemical Engineering faculty, staff and students to:

- Participate in sustainability related activities, inside Forney Hall and beyond.
- •Implement a reduce, reuse, and recycle program in our department.

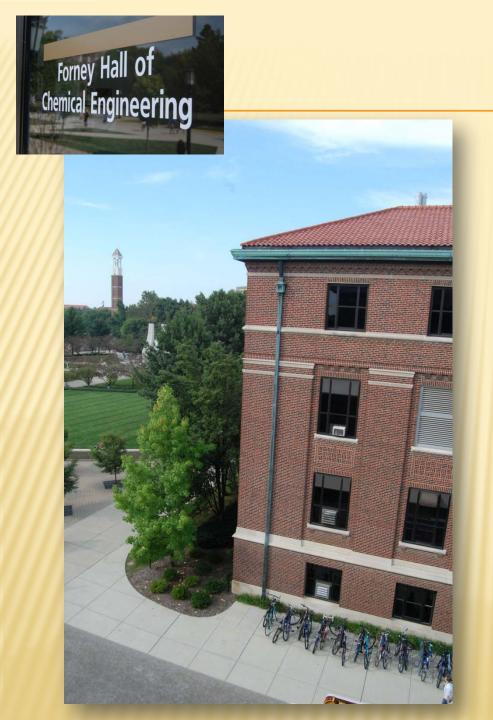
Current Members: Graduate Students Maria Elisa Luque, Sarah Yohe, Saurabh Chaugule, Faculty Advisor Raj Chakrabarti, Post Doctoral Research Associate Kris Villez, Graduate Students Piotr Gawecki and Aviral Shukla, Administrative Director Cristina Farmus, and Graduate Student Jorge Pazmino.

### **CSI- PURDUE GREEN WEEK**

**SEPTEMBER 21, 2009** 



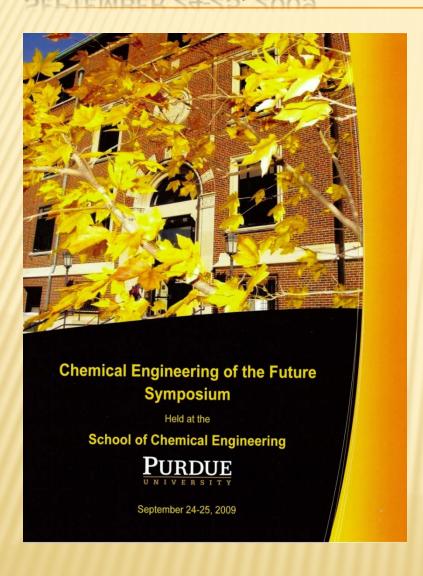
Graduate Students Dana Gary and Maria Elisa Luque and Staff Member Cristina Farmus plant trees as part of Purdue Green Week activities, helped by Purdue Grounds staffers Tim Detzner and Eric Gray





#### CHEMICAL ENGINEERING OF THE FUTURE SYMPOSIUM

SEPTEMBER 24-25, 2009



#### Participants:

- × 25 Academic
- × 16 Industrial
- × 14 ChE Ambassadors

#### **Activities:**

- Energy Panel
- Pharmaceutical Engineering and Healthcare Engineering Panel
- Dinner and keynote presentation
- Education Panel
- Visit of Research and Educations laboratories in Forney Hall
- Visit of Birck Nanotechnology Center in Discovery Park

#### **ENERGY PANEL**



Rakesh Agrawal, moderator, with speaker Maureen McCann (Purdue), and panelists Edmund Seebauer (UIUC), Andrew Geller (Carnegie Mellon) and Fouad Teymour (IIT).

#### PHARMACEUTICAL ENGINEERING AND HEALTHCARE ENGINEERING PANEL



Rex Reklaitis, moderator, with panelists Arindam Bose, Pfizer, Surya Mallapragada, Iowa State, speaker Elizabeth Topp, Purdue, and panelist Joseph Pekny, Purdue.

#### **EDUCATION PANEL**



Panelists Pedro Arce (Tennessee Tech) and Edward Cussler (University of Wisconsin), moderator Phillip Wankat, panelist David DiBiasio (WPI), and speaker Joseph McCarthy (University of Pittsburgh)



James Waters (Univ. of Louisville) and Jorge Gatica (Cleveland State Univ.)



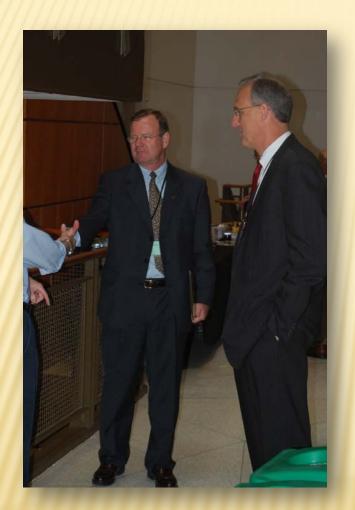
Participants in the ChE of the Future Symposium



Jeff Kloosterman (Air Products) and Allen Hersel (Trine Univ.) and Professor Osman Basaran



**Professor Jim Litster** 



Rick Roberts (ChevronPhillips) and Richard Narta (ExxonMobil)



Billy Bardin (Dow Chemicals) and Professor Fabio Ribeiro



Surya Mallapragada (Iowa State) and Elizabeth Topp (IPPH, Purdue)



James Marek (Abbott), Professor Nicholas Delgass, Edmund Seebauer (UIUC), and Andrew Gellman (Carnegie Mellon)



Harold Igdaloff (BSChE '47), with Shirley Rosenberg



Joseph Alford (BSChE '66)

#### FORNEY HALL- RESEARCH LABORATORIES VISIT





Graduate Students Grayson Ford, Steven Gaik, and Robert McCarthy, explaining experiments in the Solar Laboratories.



#### FORNEY HALL- RESEARCH LABORATORIES VISIT



Peter Pintauro (Vanderbilt University)



Linda Davis, presenting the Fundamentals Laboratory

#### **DISCOVERY PARK VISIT**

DISCOVERY PARK VISIT





Outside and inside Birck Nanotechnology Center

#### **DISCOVERY PARK VISIT**



Inside the vibration free chamber in Birck Nanotechnology Center



Outside the "clean" room in Birck Nanotechnology Center

# SEPTEMBER 2009





### INDUSTRIAL ADVISORY COUNCIL MEETING

**SEPTEMBER 25, 2009** 



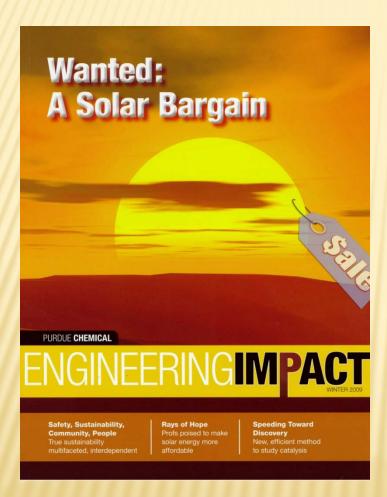
Front row, left to right: Cristina Farmus (Purdue), Linda Davis (Purdue), Ronna Robertson (Roquette), Julie Paolillo (Purdue), Chongli Yuan (Purdue)

Middle row (left to right): Peter Kraemer (Anheuser Busch), Billy Bardin (Dow), Rick Roberts (ChevronPhillips Chemical), Arvind Varma (Purdue),

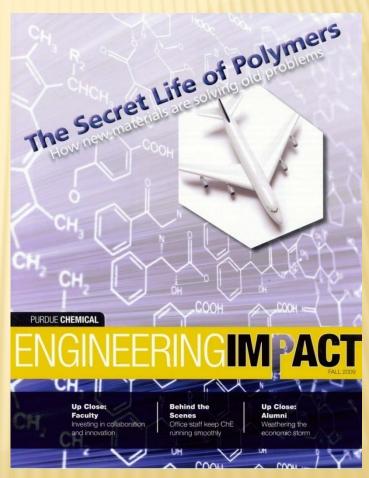
Yue Wu (Purdue), Michael Harris (Purdue), Ben Christolini (UOP)

Back row (left to right): Pierre LaMere (3M), Jim Litster (Purdue), Raj Chakrabarti (Purdue), Mark Evans (P&G), Richard Narta (ExxonMobil), Shekar Shetty (Air Liquide), Steve Beaudoin (Purdue), Arindam Bose (Pfizer), James Marek (Abbott), James Rekoske (UOP), Jeff Kloosterman (Air Products), Evan Bauman (Shell), Rakesh Agrawal (Purdue)

## **IMPACT MAGAZINES**



Spring 2009 - Sustainability



Fall 2009 - The Economy

# **THANK YOU!**



Prepared by Cristina Farmus, Administrative Director cfarmus@purdue.edu